



2005

No.05-68

**Innovative Approaches to Municipal
Infrastructure Financing:
A case study on Tamil Nadu, India**

Pritha Venkatachalam

Published: November 2005

Development Studies Institute

London School of Economics and Political Science

Houghton Street

London

WC2A 2AE UK

Tel: +44 (020) 7955 7425/6252

Fax: +44 (020) 7955-6844

Email: d.daley@lse.ac.uk

Web site: www.lse.ac.uk/depts/destin

TABLE OF CONTENTS

I. INTRODUCTION.....	3
II. INTERNATIONAL EXPERIENCES.....	8
III. INNOVATIVE MUNICIPAL FINANCING IN TAMIL NADU.....	13
IV. ASSESSMENT OF MUNICIPAL BOND ‘MARKET DEVELOPMENT’	35
V. CONCLUSION	45
APPENDIX.....	48
BIBLIOGRAPHY	49

“It is not as if the issues are entirely new, but the problems are more serious. The balancing of resources against responsibility is qualitatively different now when governments at all levels are nursing large and rising deficits”

C.Rangarajan (Chairman – Twelfth Finance Commission, India)¹

I. Introduction

The twin dilemma of ‘what constitutes adequate local government finances’ and ‘how to mobilize it’ has confounded academics and practitioners alike. The theory of fiscal federalism assigns the public finance role of resource allocation to local governments, while retaining the economic stabilization and income distribution roles at the federal level. Accordingly, only immobile tax bases such as property taxes are typically assigned to local jurisdictions.² The matching principle of local finances emphasizes that the financial capacity of local authorities should be harmonized with the functional responsibilities assigned to them. To that effect, operational expenditures were expected to be met by locally raised revenues, and capital expenditures through inter-governmental transfers, grants, and donor funds.³ Borrowing at the local level was not favored, especially in developing countries, as the traditional thesis of capital financing professed that local government borrowing is irresponsible and should be subject to considerable

¹ Twelfth Finance Commission Report 2005-10

² Musgrave (1959),p.181;Oates (1993),p.14

³ Bird (2001),pp.113-119

restrictions.⁴ This thinking was in line with donors lending to sovereigns and not directly to local bodies.

However, these conventional theories have been challenged by the recent trends of urbanization and globalization heightening pressure on cities' growth and infrastructure. Simultaneously, political decentralization strategies have pushed downwards the responsibility for coping with the explosive demand for urban services.⁵ Nevertheless, corresponding financial authority has often not been devolved, owing to unwillingness of central governments to delegate power to local entities, as well as genuine fiscal inability to meet spiraling urban infrastructure requirements.⁶ Given that immobile local revenues cannot be expanded infinitely, strengthening conventional sources of municipal income promises, at best, to cover revenue expenditures of local governments or provide an insignificant surplus for capital expenses.

In this scenario of growing vertical fiscal imbalance between function and finance, government grants and donor funds have proved inadequate to meet local capital spending. Hence, central governments are gradually embracing the idea of local governments accessing private finance for investments in public infrastructure and services. Thus, the second generation theories of 'market preserving federalism' suggest that decentralization provides governments with better incentives to foster market development.⁷ These theories are also justified on grounds of inter-temporal equity i.e.

⁴ Bahl (1981),p.263

⁵ Vera and Kim (2003),p.1;Mathur (1999),p.237

⁶ Bird (1980),pp.21-22;Bahl and Linn (1992),p.402

⁷ Sen (2003),p.85

future generations benefiting from current infrastructure investments should partake in their costs.⁸ Since private equity encumbered by dividend expectations is generally more expensive, debt is preferred to bridge the fiscal gap.

The typical options of infrastructure debt financing are borrowing from financial institutions and development banks, accessing capital markets, or soliciting private sector participation through contracts, leases and concessions.⁹ Debt is usually more forthcoming for cash flow intensive sectors such as telecom and power.¹⁰ Basic urban services like water supply and sanitation, sewerage, and solid waste management prove less attractive to private financiers given their characteristics of time and space externalities, limited cost recovery, high risk, and long gestation investments.¹¹ Hence, private provision and financing of essential urban services, especially water supply and sewerage, has met with limited success internationally.¹² Further, most such contracts demand substantial equity stake and risk sharing by governments.¹³ Borrowing from financial institutions has emerged a viable option in many countries. However, these loans are usually of shorter tenure of upto 5-7 years, and may require sovereign guarantees.¹⁴ Hence, many developing countries are turning to domestic and international capital markets to mobilize private savings for urban infrastructure involving lengthier payback periods. Given the lack of practice of local government borrowing and

⁸ Musgrave (1959),pp.562-563;Devas (1989),p.214

⁹ Black (2004);Ebel and Vaillancourt (2001),p.168

¹⁰ Ghosh and Bagchi (2002),p.4927

¹¹ Maheshwari and Maheshwari (2003),p.3

¹² Batley (1996)

¹³ Goyal (2004),p.279

¹⁴ Jha (2003),p.28;Rajivan (2004)

rudimentary capital markets in most developing countries, these attempts have had a mixed record of successfully developing municipal debt markets.¹⁵

India, with its large capital markets, is also experimenting with sub-national debt in some states. The southern state of Tamil Nadu is particularly hailed as a forerunner in innovative market-based financing of urban infrastructure.¹⁶ This paper aims to evaluate these innovative urban financing techniques adopted in Tamil Nadu, with a view to examine whether and to what extent, they have facilitated ‘municipal debt market development’. A few isolated instances of capital market access do not constitute a credit market, which involves the development of a long term viable option for capital financing. A municipal debt market is a system with a variety of local borrowers and lenders, where credit allocations are based on pricing decisions that balance demand and supply factors. As an economy grows and financial needs increase, these markets serve to integrate sub-national demand for investment capital with the supply of funds.¹⁷

To date, there have been numerous studies on innovative private *service delivery* mechanisms in India, but limited focus on innovative local *financing* of these public services. Most literature on enriching local government finances in India concentrate on traditional tax and non-tax revenues or equitable inter-governmental transfers.¹⁸ This is not surprising, given that the move towards local government borrowing from capital markets is a recent phenomenon, and as yet, embryonic in most states. Available donor

¹⁵ Bahl (1981),p.263

¹⁶ IADF(2004),p.3;Kehew et al (2005)

¹⁷ Freire et al (2004)

¹⁸ Bagchi (1997);Srinivasan (2004);Mathur et al (2000);Sarma (1986)

reports and publications detail recent local borrowing initiatives; but these facts need to be framed vis-à-vis the original goal of developing a viable market system to supplement limited public finances. This paper seeks to address this gap in the literature by appraising the undertakings in Tamil Nadu towards capital market access. The scope of study is restricted to market-based financing of overall urban infrastructure in Tamil Nadu; its impact on specific segments of the population or the urban poor is not analyzed due to space constraints and data unavailability.

In addition to secondary data sources, particularly donor documents and reports, the paper draws on a number of primary sources. These include official documents and interviews, conducted during a short field trip to Tamil Nadu in July 2005. The remainder of the paper is organized into four sections. The next section briefly surveys international experiences in market-based local borrowing to draw lessons for the analysis of Tamil Nadu's financial forays. The subsequent two sections describe the innovative urban financing approaches adopted in Tamil Nadu, and assess whether these innovations facilitate long run market development, respectively. Finally, the paper concludes that Tamil Nadu has spearheaded the advancement of municipal debt instruments and stimulated the nascent sub-national debt markets in India. But in order to translate these financial accomplishments into enduring local bond markets, they need to be complimented with corresponding project development capabilities of urban local governments, without which the funds borrowed cannot be fruitfully invested.

II. International Experiences

While most developing and transition countries are intensifying their thrusts to develop vigorous local credit markets to support decentralization initiatives, sub-national governments of North America and Western Europe hold a long-standing record of harnessing private debt for urban infrastructure. However, the credit models championed by these blocs are instructive in their diversity – while North America relies mainly on municipal bonds, Western Europe has developed its home-grown development banks, and emerging markets are attempting one or a hybrid of the above, either directly or through specialized financial intermediaries.¹⁹

The US municipal bond market originated to cater to the urban boom of the 1850s. It is today the most sophisticated in terms of its depth and nature of financing long term and cash flow needs of municipalities across sectors of urban development.²⁰ Specific purpose revenue bonds have matured into the primary source of funding capital projects, but general obligation bonds issued against the full faith of local government revenues are also prevalent. The federal government has endorsed decentralized financing by conferring tax-free status to municipal bonds, and contributing to State Revolving Funds and Bond Banks. These intermediaries pool the borrowing needs of marginal local entities that are unable to individually access capital markets.²¹ A mature federal system comprising strong sub-national governments matched with an enabling investment environment has promoted the growth of US municipal debt markets.

¹⁹ Peterson (2003)

²⁰ Temel (2001),p.49;Johnson (2004)

²¹ El-Daher (1997),pp.1-3

Western Europe, on the other hand, leveraged its historic preferential access to long term saving deposits and government contributions to establish municipal banks and financial institutions. Development municipal banks like Credit Local de France, BNG of Netherlands, Banco de Credito of Spain, and Credit Communal Belgique of Belgium handle various bundled services such as credit evaluation and project monitoring for municipal infrastructure projects prepared by local governments. With financial deregulation, these banks are also converging into the competitive capital markets to raise funds.²²

Despite the backing of international agencies and national authorities in creating Municipal Development Funds (MDF) in emerging markets, developing self-sustaining local credit markets has largely proved elusive. The pioneering MDF in Brazil enjoyed over thirty years of commendable loan recovery rates and less than 5% non-performing loans. Yet it failed to inspire the confidence of private financiers for direct municipal lending because of high commercial and political risks.²³ At the other end of the spectrum are Argentina, Indonesia, and Hungary, which were characterized by financial instability and default, resulting from fiscal indiscipline and indiscriminate local borrowing.²⁴ South African local governments, with their legacy of high self-reliance and sophisticated municipal bond markets, have been plunged into uncertainty recently. The principal causes are changes in the political and fiscal structures such as dismantling of the erstwhile prescribed investment regime in government securities, and deficiencies in the

²² Peterson (1996),pp.32-34;El-Daher (2000),p.2

²³ Peterson (2003),p.12

²⁴ Schwartz and Liuksila (1997),p.409;Kehew and Petersen (2004),p.457;Wallich et al (1996),pp.109-110

regulatory framework.²⁵ Zimbabwe has chosen the safe path of issuing municipal bonds with sovereign guarantees, thereby not relying on the prudence of local borrowers.²⁶ Low domestic savings have motivated some cities like Sofia in Bulgaria, and Moscow and St. Petersburg in Russia to float foreign bonds. This places the additional strain of currency mismatch on local governments, whose earned revenues are seldom denominated in foreign currency.²⁷

Nevertheless, not all international experiences are demonstrative of pessimistic outcomes. There are innovative local experiments that effectively developed market-based municipal borrowing, strengthened by varying degrees of federal and donor assistance or credit enhancements. FINDETER in Columbia, established in 1989 as a second tier government financial intermediary, rediscounts bank loans to local borrowers. It has motivated commercial banks to be responsible for municipal credit risks across sectors such as transportation, water and sewerage, and education. Financially and institutionally viable, FINDETER has recently diversified its client portfolio to include departmental and municipal service companies. The latest development in its active municipal credit system is the graduation of larger cities like Bogotá from bank loans to bonds.²⁸ Czech Republic represents another diversified municipal debt market, characterized by a mix of municipal bonds issued by almost all large cities, and commercial bank loans with extended tenure. Such competitive lengthening of loan periods from eight to fifteen years is made feasible by MUFIS, an MDF that provides long duration loans to banks for on-

²⁵ Bahl and Smoke (2003),pp.87-89;Leigland (1997),pp.4-7

²⁶ Phelps (1997),p.99

²⁷ Marfitsin et al (1997),p.80;Epstein et al (2000),p.89

²⁸ Kehew et al (2005),pp.20-26;Peterson (2000),p.33

lending to local governments.²⁹ These countries also prioritized capacity augmentation of local bodies to mitigate risks of market borrowing.³⁰ Morocco and Tunisia present further examples of sub-national securities issued by government and donor funded MDFs attempting to cultivate embryonic capital markets.³¹

Initiated as the brain-child of the Department of Finance in 1997, Local Government Unit Guarantee Corporation (LGUGC) in Philippines is another enterprising illustration of debt market development. Uniquely structured as a jointly owned public-private entity, supplemented by a 30% USAID backed credit guarantee, LGUGC provides insurance to municipal investors. It has also instituted a proprietary credit rating system to identify creditworthy issuers. Injecting liquidity into the dormant municipal bond market, it has offered local bodies a cheaper alternative to loans from government financial institutions.³² Poland also ventured into municipal bonds as a cheaper and longer tenure alternative to bank borrowing for financing its burgeoning infrastructure deficit.³³

The above summary of some noteworthy successes and failures to develop municipal debt markets are informative in their implications. Clearly, no decentralized municipal system is dependent on a single borrowing option for all infrastructure needs. While many governments have instituted MDFs to front-end inexperienced local borrowers, the more successful cases like Columbia and Czech have matured into a multi-tiered municipal credit system. Larger creditworthy local entities access cheaper bond finances

²⁹ Matoušková et al (1997),pp.7-16

³⁰ Jha (2004),p.133

³¹ El-Daher (2004A),pp.355-356;El-Daher (2004B),pp.365-366

³² USAID (1997),p.5;Oriol (2003),pp.405-410

³³ Wielkopolski (2006),p.1

against their own balance sheet, while small and medium entities continue to leverage financial intermediaries, development banks, and government grants. Nevertheless, as experienced in Philippines and Poland, the preference for bonds for debt financing is chiefly because of its lower cost and longer tenure. Most often, a line of credit from international financial institutions has proved instrumental in extending the maturities of local debt instruments. However, the key to financial independence is to transition gradually from donor support to own or market raised funds, which demands capable local units that can attract private investors.

As evident from Brazil and South Africa, robust financial indicators of timely repayments or market liquidity are necessary but not sufficient to develop the confidence of private creditors. Strong political backing, and more importantly, institutional stability and capacity of local bodies are critical to mitigate the risks of market development. The two extreme illustrations of financial crises fuelled by unrestrained local borrowing in Argentina or Indonesia, and the demonstrated lack of trust in local governments in Zimbabwe are also enlightening. They underscore the necessity for national governments to maintain the fine balance between ensuring adequate fiscal controls on local borrowing, and devolving sufficient autonomy and flexibility to develop self-standing sources of municipal credit. Thus, the notion of 'local government borrowing being irresponsible' has been turned on its head to 'reliable local governments borrowing responsibly'.

III. Innovative Municipal Financing in Tamil Nadu

Need for capital market financing

The Constitution of India ordains that India is a union of states and union territories, with residual legislative powers vesting in the central government.³⁴ Despite the existence of urban local bodies (ULBs) even prior to British colonization,³⁵ they were formally conferred the status of ‘democratic institutions of self government’ only in 1992, with the passing of the Constitution (Seventy-fourth Amendment) Act. This landmark amendment provided for direct elections to the three types of Municipalities: Town Panchayats for areas in transition from rural to urban areas; Municipal Councils for small urban areas; and Municipal Corporations for larger urban areas. It also proposed the formation of State Finance Commissions (SFC) every five years, to recommend principles to strengthen municipal finances through assigned taxes, devolved taxes, and grants in aid from the State.³⁶ However, the amendment is widely critiqued for its equivocal ‘letter of law’, which leaves the extent of devolution to the discretion of respective state governments.³⁷ Consequently, there are conspicuous disparities in the degree of decentralization across different states of India.

Tamil Nadu has oscillated between decentralization and recentralization of power to ULBs prior to 1990s, with irregular conduct of municipal elections and wide fluctuations

³⁴ The Constitution of India, Article 1

³⁵ Datta (1999),p.87. Madras was the first local body to receive a municipal charter in 1687

³⁶ The Constitution (Seventy-Fourth Amendment) Act,1992

³⁷ Interview with S.Malathi,5 July 2005

in fiscal devolutions.³⁸ However, after the 1992 Amendment, Tamil Nadu has led India's decentralization efforts. It passed the conformity legislation in 1994, conducted two rounds of local government elections, and constituted and implemented the recommendations of the SFCs 1996 and 2001.³⁹

The State ULBs comprise 6 Municipal Corporations and 151 Municipalities, including 49 erstwhile Town Panchayats upgraded to Third Grade Municipalities in June 2004.⁴⁰ Urban areas with population over 500,000 and last three years' average annual income over Rs.300 million are classified as Municipal Corporations, and those with population over 30,000 and income over Rs.5 million as Municipalities.⁴¹

Tamil Nadu is the one of most urbanized states of India with an urban population of 27.5 million, about 44% of the state population.⁴² The average annual growth rate of urban population from 1991-2001 has been around 4.2%, the highest since 1961 (*Table 1*). While the capital city of Chennai has the highest population (4.4 million), unlike other Indian states, Tamil Nadu's urban populace is well distributed over various classes of urban agglomerations and towns.⁴³

³⁸ Guhan (1986),p.34

³⁹ Mukundan (2005),p.2

⁴⁰ Tamil Nadu at a glance;Tamil Nadu Government Gazette No.149/G.O.No.270,June 2004;Tamil Nadu Government Gazette No.150/Ordinance No.7,June 2004. Until June 2004, there were 611 Town Panchayats, of which 562 were re-classified as special village panchayats and 49 were upgraded to third grade municipalities by government order.

⁴¹ Tamil Nadu District Municipalities Act 1920,Section 4

⁴² Census of India,2001. The All-India average urban population (2001) is 26%

⁴³ Census of Tamil Nadu,2001

Table 1: Tamil Nadu Urban Population (1961-91)

Census Year	Population		Growth rate	Level of Urbanization
	Total	Urban	Urban	
	in Million		%	%
1961	33.7	9.0	2.3%	27%
1971	41.2	12.5	3.9%	30%
1981	48.4	16.0	2.8%	33%
1991	55.9	19.1	1.9%	34%
2001	62.1	27.2	4.2%	44%

Source: Census of Tamil Nadu, 2001

Such rapid urbanization has imposed an additional strain on existing infrastructure deficiencies in the state. In 2004, daily per capita water supply across ULBs varied from 37-78 liters, significantly below the state norm of 90 liters. Only 60% of the population in Corporations, 32% in Municipalities, and 16% in erstwhile Town Panchayats had access to safe sanitation and sewerage. Although 80% of solid waste generated was collected, most local bodies did not have organized disposal facilities. Less than 60% of the roads were provided with storm water drains.⁴⁴

Moreover, the 1992 Constitutional Amendment delegated responsibilities for the construction, operation, and maintenance of the above infrastructure to local bodies.⁴⁵ Contrary to international experience as well as practices of most other states of India, the Government of Tamil Nadu (GoTN) did substantially increase financial devolution to local bodies, on recommendation of the SFCs. These devolutions permitted the ULBs to maintain operating surpluses on their revenue account (*Table 2*). Also, capital

⁴⁴ Urban finance assessment for TNUDP III, 2004; TNUDF Activity Report 2003-04

⁴⁵ List of subjects, Article 243.W, 12th Schedule, The Constitution (Seventy-Fourth Amendment) Act, 1992

investments post devolution have grown manifold year on year, with the exception of 2000-02, when the state government faced severe fiscal deficits (*Table 3*).⁴⁶

Table 2: Revenue accounts of all ULBs 1998-2003 (Rs. million)

Category/ Rs million	1998-99	1999-00	2000-01	2001-02	2002-03
Own & other revenues	7037	8537	10944	10646	11758
Assigned revenue and devolutions	5590	6423	6109	4529	8953
Total revenues	12627	14960	17053	15174	20711
Total revenue expenditure	8914	10405	11808	11892	14896
Revenue surplus/ deficit	3713	4555	5245	3282	5815

Source: Twelfth Finance Commission Report 2005-10, p.443

Table 3: Capital Investments across ULBs in Tamil Nadu 1995-2003 (Rs. million)

Rs million	Pre Devolution		Post Devolution					
	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
Capital Investments	2073	2380	4056	5570	6337	6163	4985	6598

Source: Twelfth Finance Commission Report 2005-10, p.443; Second State Finance Commission Report 2001, p.44

Despite such heartening fiscal developments, Tamil Nadu still falls far short of requisite capital investments, based on the sector-wise service norms ratified by the state. Capital financing estimations of the Second SFC indicate that the total infrastructure needs of ULBs projected over 2002-07, is over *three times* in excess of their optimum investment capability from self-raised revenues and devolutions (*Table 4*). Sector-wise analysis of infrastructure requirements indicates that water supply and sanitation, roads, and storm water drains represent the greatest needs.⁴⁷

⁴⁶ Twelfth Finance Commission Report 2005-10, p.443; Second State Finance Commission Report 2002-07, p.44

⁴⁷ Second State Finance Commission Report 2002-07, pp.52-63

Table 4: Financing gap for infrastructure investments in Tamil Nadu (Rs. million)

Category	2002-07 (Rs. billion)	
	Investment required as per norms	Optimum investment capability
Municipal Corporations	22.55	9.75
Municipalities	26.79	6.50
Town panchayats*	29.70	8.03
Total	79.04	24.28

* Includes the erstwhile 611 town panchayats before the 2004 Government Order

Source: Second State Finance Commission Report 2001, pp.52-63

The shortfall in essential infrastructure financing is, in essence, the burning platform to explore alternate sources of capital to supplement existing revenues. Notwithstanding which, the urban sector that contributes to over 65% of the gross state domestic product would face an awning infrastructural deficit and stall as an engine of growth.⁴⁸ Furthermore, it was recognized at the central level that cities need to look beyond budgetary support for capital financing. The Eighth Five Year Plan 1992-97 envisaged building cost recovery into the municipal finance system, and the Ninth Plan 1997-2002 substantially reduced budgetary allocations for infrastructure and suggested mobilizing institutional and market-based financing.⁴⁹ While some avenues for institutional finance such as Housing and Urban Development Corporation and Life Insurance Corporation do exist, their interests in municipal infrastructure have declined with financial liberalization and the subsequent dismantling of the government's mandatory infrastructure investment scheme.⁵⁰

It was in this context that Tamil Nadu pioneered a series of innovative approaches to finance its urban infrastructure, creating benchmarks for other states emulating its

⁴⁸ Vyas (2004),p.5

⁴⁹ Pethe and Ghodke (2002),p.2468

⁵⁰ FIRE (1999A),p.1;Kundu (2001)

example. A range of financial innovations were pursued; to name a few - funds mobilisation through a unique private-public financial intermediary model, capital market access using customized credit enhancements, and ingenious pooled financing of a project portfolio of smaller local bodies. These were accompanied by far-reaching reforms in municipal accounting, automation and e-governance, and performance management systems. The World Bank and USAID have been partners in the state-wide urban development program, supporting the government's initiatives financially and institutionally.

Tamil Nadu Urban Development Fund (TNUDF)

A component of the Bank assisted Tamil Nadu Urban Development Project (TNUDP), TNUDF was promoted in 1996. Essentially a make-over of the previous Municipal Urban Development Fund (MUDF) created in 1988, TNUDF initiated non-traditional financing of urban local governments in Tamil Nadu. Although MUDF was financially viable, its excessive reliance on limited public funds and the political risks of bureaucratic interference motivated its restructuring.⁵¹ All assets and liabilities of MUDF were transferred to TNUDF, which was incorporated as a trust by GoTN with Rs.1.2 billion capital contribution. By 2000-01, the Fund had grown to Rs.2 billion with 29% of the capital invested by three leading All-India financial institutions - The Industrial Credit and Investment Corporation of India, Housing Development Finance Corporation, and Infrastructure Leasing & Financial Services, and a reduced 71% equity participation by GoTN. Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL) was established as the Fund's asset management company. It had a majority private stake,

⁵¹ The World Bank (1999),p.30

with the same three financial institutions holding 51% equity and GoTN contributing 49%. TNUDF was thus India's first public-private financial intermediary managed by a predominantly private fund manager, geared to mobilize long term debt for municipal infrastructure.⁵² True to its objective, in a little over a year of operation, TNUDF had approved municipal loans worth Rs.1.5 billion, in contrast to MUDF's sanction of Rs.2 billion over eight years.⁵³

Professional management and scientific loan appraisal processes represent only a facet of the transformation induced by TNUDF in the sourcing and deployment of finances for urban growth. In addition to equity, the Fund had access to a line of credit of about Rs.3.7 billion (US\$ 80 million) from the World Bank, on-lent by GoTN.⁵⁴ Leveraging its public-private capital base, TNUDF ventured to raise cheaper debt funds by floating five years non-convertible bonds in November 2000. The issue of Rs.1000 million was offered on private placement. Despite being the maiden non-guaranteed bond issue by an MDF in India,⁵⁵ it reaped an oversubscription of Rs.1100.5 million. The generous private institutional contribution, despite the state facing growing fiscal deficits that year, is expressive of the confidence reposed in the financial intermediary. Various commercial banks purchased 70.5% of the bonds, TNUDF contributors 12%, regional rural banks 9.5%, and insurance companies 8%.⁵⁶

⁵² Pradhan (2003),p.131;Financial Review of TNUDF,2005,p.3&p.7

⁵³ The World Bank (2005A),p.3

⁵⁴ The World Bank (1999),p.25

⁵⁵ Individual Municipal Corporations like Bangalore Corporation and Ahmedabad Corporation issued bonds prior to 2000

⁵⁶ Kehew et al (2005),p.29

Designed as neither a general obligation (pledged on overall municipality revenues) nor a revenue bond (pledged on specific project revenues) as evolved in the US, the credit instrument was indigenously conceptualized as a Structured Debt Obligation, with a dedicated escrow of reliable income sources.⁵⁷ A Bond Service Fund (BSF), equivalent to one year's principal and interest, was maintained as collateral until expiry of the bonds. These proceeds were safely invested in the best-rated liquid securities like Government of India treasury bills. The debt obligation was accorded seniority status and ranked first in the pecking order for repayment. In the eventuality of drawing down the BSF, TNUDF provided the additional cushion of an escrow on its own current account, which would be frozen for withdrawals until the BSF was replenished. Such an elaborate credit enhancement mechanism was intended to protect the debt from adverse political factors and duly fetched a 'high credit quality/ low credit risk' rating from the Indian Credit Rating Agency.⁵⁸ The high safety rating enabled a competitive coupon rate of 11.85% per annum, less than 1% premium over the comparable government security rate of 11%.⁵⁹

Flush with cash, TNUDF spearheaded significant growth in fresh asset creation across ULBs. As of 31 March 2001, TNUDF's total assets were worth Rs.6.6 billion, comprised chiefly of loans to ULBs (71%); the remainder included investments and current assets.⁶⁰ The core beneficiaries were smaller municipalities and town panchayats facing a sizeable backlog of essential infrastructure investments. Over 175 projects were sanctioned by March 2002, primarily for roads and bridges, sewerage and sanitation, and water supply,

⁵⁷ Interview with R.Venkataraman,6 July 2005

⁵⁸ ICRA (2000);Interview with H.Mahalingam,7 July 2005

⁵⁹ TNUDF Annual Accounts,31 March 2002;RBI (2000)

⁶⁰ TNUDF Annual Accounts,31 March 2001

but also some commercial projects. By March 2004, the portfolio consisted of a larger proportion of sewerage and water supply projects, resulting from TNUDF assistance to the National River Conservation Project, which preserved state waterways from being polluted by the overflow of sewage (*Table 5*).⁶¹ Since disbursements were only made against expenditures undertaken for works, project execution was speedier and more streamlined. To illustrate, some small road projects were completed in 2-3 months vis-à-vis the state department's lead time of over 12 months.⁶²

Table 5: TNUDF sector wise project portfolio – Loans sanctioned

Sector	March-02		March-04	
	Amount (Rs. Million)	%	Amount (Rs. Million)	%
Bridges & Roads	2853.40	65%	2929.7	48%
Sewerage & Sanitation	971.40	22%	2285.1	38%
Water Supply	267.00	6%	506.5	8%
Bus Stations & Commercial Complexes	215.70	5%	215.7	4%
Storm Water Drains	56.30	1%	56.3	1%
Miscellaneous	54.70	1%	54.9	1%
Total	4418.50	100%	6048.20	100%

Source: TNUDF Activity Reports 2001-02 & 2003-04

TNUDF resourcefully bagged a series of 'firsts' through the inventive structuring of projects financed, notably for the smaller and infrastructurally backward local bodies. The Fund facilitated the first toll bridge on a Build-Operate-Transfer contract in Karur Municipality at an estimated cost of Rs.160 million. This mandated a regulatory amendment of the Tamil Nadu State Toll Act to authorize a ULB to sign a BOT contract. Another first was a Build-Own-Operate-Transfer sewerage network for Alandur Municipality designed futuristically for a projected population of 300,000 persons in

⁶¹ TNUDF Activity Reports 2001-02 and 2003-04; TNUDF II Project Evaluation Report, 2005, p.44

⁶² The World Bank (2005A), p.6

2027, at a cost of Rs.480 million. The municipality had only water-borne sanitation facilities decanting into open storm water drains, precipitating unsanitary conditions. The debt burden for the sewerage system was resourcefully mitigated through one-time connection deposits paid by beneficiaries.⁶³ The deposit amount was collectively determined through detailed consultations with the local population over many months. These finally concluded in a tiered contribution structure with households paying Rs.5,000 per connection, cross-subsidized by industrial and commercial establishments contributing Rs.10,000.⁶⁴ Willing deposit payments for public infrastructure had no precedent in India and laid the foundation for a commercial mind-set to such projects. A third project worth mention was the construction of bus stands for Tirunelveli Municipal Corporation, where the TNUDF loan was fully repaid with cash payments from potential users. The complex also recouped an annual saving of Rs.2.5 million by outsourcing operation and maintenance to a private contractor.⁶⁵

TNUDF not only innovatively funded several infrastructure services drawing on private and community participation but also built a financial track record of timely loan recovery. GoTN provided offset arrangements for loans inherited from MUDF, whereby TNUDF could draw on the government grant fund in case of default. This would then be topped up through the intercept of state devolutions to the ULB.⁶⁶ For loans appraised by TNUDF, the terms of agreement established escrows of ULB tax and non-tax collections. In addition to these safeguards, TNUIFSL, the fund manager, initiated constant follow-up of undue delays in repayment. Periodic reviews of the arrears portfolio ensured record

⁶³ TNUDF II Project Evaluation Report,2005,pp.71-72;Mathur (2002),pp.226-228

⁶⁴ Interview with R.Kesavan and N.V.V.Raghava,13 July 2005

⁶⁵ The World Bank (2005A),p.8

⁶⁶ Kehew et al (2005),p.30

recovery rates, consistently above 99%. This is especially laudable, when juxtaposed with the 55% loan recovery rate prior to TNUDF operation (*Table 6*).⁶⁷

Table 6: Loan Recoveries of TNUDF (%)

Year	Recoveries as a % of Total Demand
Prior to Mar-1997	55.48%
1997-98	81.14%
1998-99	83.75%
1999-2000	99.00%
2000-01	100%
2001-02	99.75%
2002-03	99.81%
2003-04	98.80%

Source: TNUDF Activity Report 2003-04

The strong loan portfolio held by TNUDF was not fortuitous, but an outcome of emphasis on stringent qualification criteria for both the project and the borrower. The project had to involve high-priority capital expenditures and not finance land acquisition, operation and maintenance, or revenue expenditures. The urban infrastructure sectors entitled were transport, water supply, solid waste management, sanitation, integrated area development, roads and bridges, and sites and services, and excluded power and telecom. Additional eligibility criteria imposed by TNUDF included project contribution to improved living standards, compliance with stipulated environmental and social norms, and where quantifiable, an Internal Rate of Return of 2% above the lending rate, and an Economic Rate of Return of at least 12%. Eligible borrowers comprised ULBs, statutory boards, public undertakings, and private corporations, qualified on the basis of financial

⁶⁷ TNUDF Activity Report 2003-04

prudence - ratio of total expenditure to revenue had to be less than 1, and the ratio of debt service to total revenue less than 30% to allow a surplus for other operating expenses.⁶⁸

Once selected, ULBs were eligible not only for TNUDF loans but also two grant funds of GoTN, all operated and managed by TNUIFSL. Some analysts claim that the first grant fund instituted for poverty alleviation enhanced the attractiveness of TNUDF in comparison to other market-based instruments, by offering grant-loan blended lower interest rates. But scrutiny of the grant operation and disbursements indicates that any urban infrastructure project in Tamil Nadu with demographic and geographic delineation of over 30% of its beneficiaries below the poverty line were eligible for the grant. In fact, of the total grant payout of Rs.520 million until March 2003, TNUDF had drawn on less than 50% of the facility, in credence to the Fund never really embracing poverty reduction as its goal.⁶⁹

More pertinently, the second GoTN grant fund managed by TNUIFSL is the real unique proposition of TNUDF. This grant supports eligible ULBs with technical assistance for upgrading technical, financial, and managerial capabilities, as well as project preparation and consultancies. As quoted in the Evaluation Report of the Bank assisted Second Tamil Nadu Urban Development Project, ‘outsourcing of design and management functions resulted in estimated savings of 5% on large projects vis-à-vis state entities, translating to a gain of Rs.230 million over the project period 1999-2004’.⁷⁰ Moreover, this grant, supplemented by additional state finances, was instrumental in sparking sustained

⁶⁸ Sood (2004),pp.430-431

⁶⁹ Interviews with K.Rajivan,1 July 2005;Gayathri,6 July 2005. As stated earlier, the Fund’s objective was to improve overall urban living standards, and not directly target the poor.

⁷⁰ TNUDF II Project Evaluation Report,2005,p.56

reforms in the overall administration and management of ULBs. Tamil Nadu is the first and only state in India to have shifted from cash based accounting to double entry accrual accounting across all Municipal Corporations and Municipalities by April 2000. Accrual accounting, reflecting receivables, payables and contingent liabilities, is a more standardized and realistic depiction of the ULB's financial position, and is preferred by credit rating agencies and lenders for any market-based financing. Further, it facilitates the preparation of commercially viable infrastructure projects, as the earlier cash based system could not clearly earmark project revenues against costs.⁷¹ The ULBs have also computerized all their accounts and registration records, improving collections efficiency and increasing information transparency.⁷² In terms of monitoring urban performance, TNUDF with assistance from the USAID FIRE (D) project,⁷³ has developed a state-wide urban performance indicators system to compare service levels, operational and management efficiency, and financial performance across ULBs. The first such comparative assessment of ULB performance was undertaken with the data collected by the First SFC, and informed planning and policy making in the state.⁷⁴

Madurai Municipal Corporation Revenue Bond Issue

While financial and institutional sustainability is the hallmark of success of any Municipal Development Fund, its true impact should be assessed in terms of development of aggregate private municipal credit systems.⁷⁵ TNUDF aspired to this broader role by not only issuing its own bonds and attracting private sector participation,

⁷¹ FIRE (2000),pp.2-3

⁷² Interview with A.Sharma,6 July 2005;Joshi (2004),pp.344-346

⁷³ FIRE(D) denotes Financial Institutions Reform and Extension Project – Debt Market

⁷⁴ FIRE (1999B),pp.1-3

⁷⁵ Peterson (1996),p.38

but also facilitating capital market access for other commercially viable projects and local entities. Such assistance in the instance of Madurai Corporation was quite exceptional, because it was provided at the cost of shrinking TNUDF's own loan portfolio. The Madurai Inner Ring Road is a 27.2 kilometers 2 lane road inaugurated in November 2000, with the objective of decongesting the city of the heavy south-bound commercial vehicular traffic. The project cost of Rs.440 million was jointly funded by a loan of Rs.305 million from TNUDF and a grant of Rs.130 million from GoTN. Tolls accruing from the usage of the road were allocated to service the debt, and GoTN agreed to bridge any deficiency in toll revenues. The toll rates were notified by GoTN, mandating an annual increase of 8% for the first five years, with subsequent increases to be decided after the five year period.

Following the completion of construction and a year of operation, Madurai Corporation chose to refinance the TNUDF borrowing by sourcing market funds at a cheaper cost.⁷⁶ The TNUDF loan interest rate was 15.5% per annum, while the ten years government securities rate had fallen to 10.3%. With assistance from TNUDF, the Corporation replaced the loan with a Structured Debt Obligation worth Rs.304 million, issued for ten years on private placement.⁷⁷ The bond structure was novel in numerous aspects. The first revenue bond issued in India, its debt was to be serviced solely from toll collections, ring fenced from other revenues of the Corporation by a no-lien escrow account. GoTN's declaration to make good any shortfall imparted additional comfort. The revenue bond did not offer recourse to either the Corporation's finances or the state intercept.⁷⁸

⁷⁶ TNUDF II Project Evaluation Report,2005,p.68;ICRA (2003)

⁷⁷ Singh (2003),p.9;Kehew et al (2005),p.30

⁷⁸ Policy note 2004-05 of Municipal Administration and Water Supply Department, GoTN

Nonetheless, as stated by the manager of the Indian Credit Rating Agency, which provided a bond rating of 'adequate credit quality/ average risk', 'the fact that the refinancing was structured after the road was made operational and tolls accruing, lessened potential construction risks. If the bond was issued against the faith of Madurai Corporation's finances, the rating would have been downgraded, as its revenues did not permit sufficient borrowing capacity'.⁷⁹ TNUDF, having absorbed the initial development risk of potential cost and time overruns, enhanced the attractiveness of the Madurai bond. Marked at an annual coupon rate of 12.25%, its successful placement saved the local government almost Rs.10 million a year on interest payments.⁸⁰

However, the viability of the project depends on projected toll collections, which hinges on the commercial carriers and long distance vehicles using this newly built road that circumvents city boundaries. The first year's usage was very heartening, but traffic declined by 4.7% in the second year of operation, primarily due to litigation by short distance operators over the compulsory use of the road. The next two years witnessed a positive traffic growth of over 9% due to increased plying by commercial vehicles and cars. Thus far, toll collections have afforded a moderate surplus in the escrow account after interest payment.⁸¹ However, the issue of adequate revenues has resurfaced in 2005, with hundreds of long distance buses, including government transport vehicles, boycotting the bypass and driving through the already congested city.⁸² Hence, despite the apparent initial success of the market-based refinancing, the commercial risk of

⁷⁹ Interview with H.Mahalingam,7 July 2005

⁸⁰ Kehew et al (2005),p.30

⁸¹ ICRA (2003)

⁸² Daniel (2005)

irregular road usage could threaten the stability of projected tolls, the basis of revenue bond servicing.

Water and Sanitation Pooled Fund (WSPF)

The above approach to direct market access is customarily restricted to commercially tenable projects or municipalities with large and predictable revenue streams. However, a majority of the local bodies in Tamil Nadu with large unattended infrastructure requirements are small and medium sized municipalities. The key variable for prudent financing of these entities is the cost incurred per rupee raised. Transaction expenses like bond issuance fees and credit rating charges involved in capital market access would constitute a high proportion of project costs for the smaller ULBs. This would impose an excessive burden on cost recovery mechanisms such as user tariffs. In order to ensure the inclusion of weaker ULBs and relatively small but essential projects, GoTN instituted a special purpose vehicle called WSPF in August 2002. Incorporated as a trust with a mere contribution of Rs.10,000 from GoTN, the idea was to maintain a thinly funded, leveraged structure that would not impose high dividend costs on beneficiaries.⁸³ The inventive low-cost pooled arrangement was more noteworthy given the non-remunerative nature of water and sanitation projects in small local bodies. This fund was also entrusted to the management of TNUIFSL.⁸⁴

Pooling the water and sanitation requirements of thirteen municipalities and town panchayats, WSPF mobilized capital market finances through an unsecured Structured Debt Obligation for Rs.304.1 million in December 2002. Based on the principle of credit

⁸³ WSPF – Objectives, Structure, Security and Credit Enhancements 2002

⁸⁴ IADF (2004),p.6

aggregation, this was the first successful pooled market financing outside the US. It proposed to upgrade the bond rating of a judicious mix of financially strong and weak ULBs and achieve economies of scale for small city projects that cannot individually access capital markets.⁸⁵ Issued for fifteen years tenure, it is the only truly long term municipal infrastructure bond in India.⁸⁶ Beyond a plain vanilla issue, the structured financing was enriched with put and call options after ten years. The options provide a safety net to investors who may wish to divest their holding before maturity, thereby increasing bond liquidity.⁸⁷

In order to bolster market confidence for India's maiden pooled bond, the debt nestled in multiple layers of credit enhancements. The first level was a no-lien escrow account established by the thirteen ULBs on all their revenues including property and other tax collections, non-tax receipts, and state devolutions. In order to avoid maturity mismatches in revenue and repayment profiles, each ULB had to transfer 1/10th of its annual debt service to a separate fixed deposit account, with precedence over other commitments. The cumulative deposits were then transferred to the WSPF account to service bond holders. Any shortfall in monthly deposits was to be covered by future accrued state devolutions to the ULBs. The next safety layer was a Bond Service Fund of Rs.69 million, invested in low-risk liquid securities. The final credit enhancement was a USAID Development Credit Authority guarantee for 50% of the principal amount, which would diminish annually as installments got repaid. GoTN agreed to bear the remainder 50% of the

⁸⁵ Johnson (2004)

⁸⁶ The longest tenure of municipal bonds issued in India was ten years

⁸⁷ Leigland (1997),p.8

principal, 100% of the interest, and a one time utilization fee for the USAID guarantee.⁸⁸ The enhanced pooled debt instrument secured a dual 'high safety' credit rating from Fitch Ratings and the Indian Credit Rating Agency. Privately placed at a competitive rate of 9.2%,⁸⁹ it was immediately subscribed for by commercial banks and provident funds.⁹⁰ The full subscription for this pioneering issue is more consequential in the context of WSPF bond income being taxable compared to the US tax-free pooled bonds that provide added incentives to private savers.⁹¹

The bond proceeds were lent back-to-back to the thirteen ULBs in the pool at 9.2% per annum, resulting in substantial savings versus their individual borrowing rate of 12%.⁹² The shortlisted portfolio included water supply augmentation schemes for eight municipalities and town panchayats adjacent to Chennai plus five other municipalities, and an underground drainage project for Madurai Corporation (*Table 7*). The new connections were projected to increase daily per capita water supply for beneficiaries by 30-40% over current baseline availability, although still below the state norm of 90 liters. A special characteristic of these projects was that they were all fully or nearly completed and most of them already financed by TNUDF. Structurally, the credit enhancement mechanisms aimed to overcome liquidity and political risks, and the project completion aspect surmounted development risk.⁹³ The promoters of WSPF considered it imperative to cherry-pick projects that were nearly commissioned, so that the funds could be

⁸⁸ Fitch Ratings (2003),p.2

⁸⁹ The long term government security rate in that period was 9% (RBI 2002)

⁹⁰ FIRE (2003),pp.2-3

⁹¹ Adjacent Urban Areas Board Note:WSPF Bond,2003;El Daher (1997),p.1

⁹² Ghodke (2004),p.145

⁹³ Memorandum of private placement for non-convertible redeemable bonds issued by WSPF,2002

deployed immediately. The risk of construction delay could deter private investors, and also lay idle the bond proceeds, incurring a high opportunity cost.⁹⁴

Table 7: Pooled Finance Bond Projects

S.No.	Name of the Urban Local Body	Proceeds of Bond	
		Rs. Million	%
	Water Supply Schemes:		
1	Ambattur Municipality	6.7	2%
2	Tambaram Municipality	10.9	4%
3	Madhavaram Municipality	19.4	6%
4	Rajapalayam Municipality	5.1	2%
	Adjacent Urban Areas – AUA		
5	(i) Alandur Municipality	40.3	13%
6	(ii) Pammal Town Panchayat	35.7	12%
7	(iii) Ankapathur Town Panchayat	17.8	6%
8	(iv) Ullagaram Town Panchayat	28.1	9%
9	(v) Porur Town Panchayat	54.7	18%
10	(vi) Maduravoyal Town Panchayat	13.8	5%
11	(vii) Valsaravakkam Town Panchayat	17.9	6%
12	(viii) Meenambakkam Town Panchayat	1.6	1%
	Under Ground Drainage:		
13	Madurai Corporation	52.0	17%
	Total	304.1	100%

Source: Memorandum of private placement for non-convertible redeemable bonds issued by WSPF, 2002

The pooled bond finances were thus productively deployed and also triggered a buoyant secondary market. In 2003, WSPF bonds were trading at a premium price of Rs.109-110 per bond of face value Rs.100.⁹⁵ An active secondary market enhances liquidity of the credit instrument and is regarded as a vital adjunct to the development of primary municipal markets.⁹⁶

⁹⁴ Interview with L.Ravikumar, 11 July 2005

⁹⁵ Adjacent Urban Areas Board Note: WSPF Bond, 2003

⁹⁶ Bagchi and Kundu (2003), p.790

The successful track record of the TNUDF bond issue, followed by the Madurai revenue bond, and WSPF pooled financing, inspired the Government of India to vouch support for these new approaches to urban financing in the Union Budget 2002-03. A City Challenge Fund was proposed to help cities finance the transition costs of founding sustainable, creditworthy institutions of municipal management and service delivery. A Pooled Finance Development Fund was also mooted for small local bodies to access market borrowing.⁹⁷ While these proposals are still under discussion, the government has conferred tax-free status for municipal bond issues upto Rs.5 billion.⁹⁸

Other Bond Issues in Tamil Nadu

More recently, TNUDF provided technical assistance for the two bond issues of Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB), and one of Chennai Municipal Corporation, all of which secured tax-free status under the Government of India notification.⁹⁹ These instruments were also unsecured Structured Debt Obligations with layers of credit enhancements, drawing on the successful principles of the TNUDF bond. CMWSSB issued seven years redeemable municipal bonds worth Rs.420 million in 2004, backed by a 'high credit quality' rating from Credit Rating and Investment Services of India Limited (CRISIL). Pegged at a tax-free yield of 5.2%, it part financed the Chennai water supply augmentation scheme at a project cost of Rs.720 million.¹⁰⁰ CMWSSB issued its second seven years bond for Rs.500 million in March 2005 to part

⁹⁷ Union Budget of India 2002-03

⁹⁸ Pradhan (2005),p.25

⁹⁹ Gazette notification of Government of India No.293,S.O.392(E),24 March 2004

¹⁰⁰ Information Memorandum for the private placement of bonds of CMWSSB,2004

finance a project worth Rs.2200 million for the construction of a water treatment plant and its allied works in Chennai.¹⁰¹ Close on its heels, Chennai Corporation raised Rs.350 million on private placement in May 2005, issuing ten years redeemable bonds at 5.45%. Again rated of 'high credit quality' by CRISIL, the proceeds part financed the construction and augmentation of roads infrastructure in Chennai.¹⁰²

In sum, Tamil Nadu has ably mobilized capital market finances, both on the individual strength of some of its municipal entities and through the intermediation of the Municipal Development Funds, TNUDF and WSPF. (Refer *Figure 1* for the Funds Framework and *Figure 2* for Direct Market Access). TNUIFSL resourcefully managed these market-based funds as well as two government grant funds for poverty alleviation and technical assistance. It thus disproved the common belief that unified management of loans and grants could foster corruption and inability to recover the debt.¹⁰³ Furthermore, deploying innovative mechanisms such as municipal credit ratings, credit enhancements, and embedded options, these bond issues have built several reliable capital market relationships with private institutional investors.¹⁰⁴

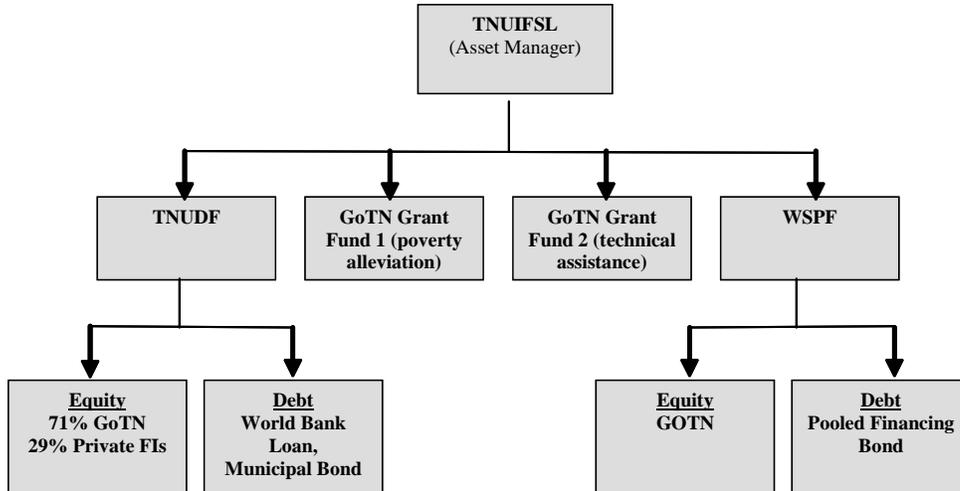
¹⁰¹ Information Memorandum for the private placement of bonds of CMWSSB,2005

¹⁰² Information Memorandum for the private placement of bonds of the Corporation of Chennai,2005

¹⁰³ Kehew et al (2005),p.32

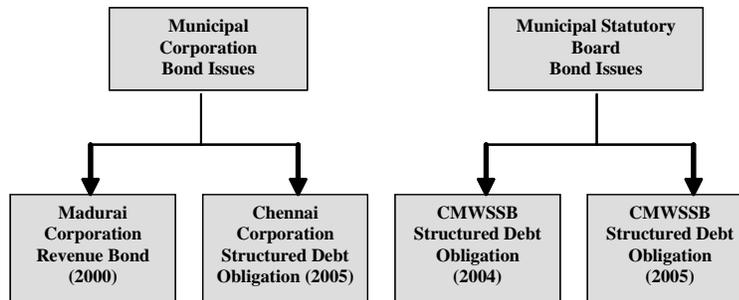
¹⁰⁴ Pradhan (2004)

Figure 1
Municipal Development Funds Framework in Tamil Nadu



Notes: TNUIFSL: Tamil Nadu Urban Infrastructure Financial Services Limited; TNUDF: Tamil Nadu Urban Development Fund; GoTN: Government of Tamil Nadu; WSPF: Water & Sanitation Pooled Fund; FIs: Financial Institutions

Figure 2
Direct Capital Market Access in Tamil Nadu



Notes: CMWSSB: Chennai Metropolitan Water Supply and Sewerage Board

IV. Assessment of Municipal Bond ‘Market Development’

The moot question is whether the above-described instances of innovative financing arrangements and capital market relationships have been successful in developing long term municipal bond markets in Tamil Nadu. This section assesses the internationally acclaimed market achievements of Tamil Nadu against the basic ingredients of municipal market development.¹⁰⁵ Whereas in developed markets, the introduction of new financing instruments like municipal bonds may demand research, marketing, and perhaps legislative changes, its establishment in emerging markets may necessitate development of elements of the market itself, both on the demand and supply sides.¹⁰⁶ The demand side represents the financial, technical, and administrative capabilities of ULBs as borrowers, and the supply side denotes capital market or lenders’ characteristics. To create lasting credit markets, these twin forces need to be developed in parallel, so that the finances borrowed can be optimally utilized.

Tamil Nadu has certainly transcended the typical constraints of capital market access confronted by most developing countries. As suggested by international experiences, Tamil Nadu is also not dependent on a single source of market borrowing. Within a decade since the incorporation of TNUDF, the ULBs are gradually maturing into a multi-tiered market financing structure. Larger ULBs such as Madurai and Chennai Corporations and utilities like CMWSSB have successfully issued bonds against the strength of their own revenues or project income streams. Medium and small sized ULBs

¹⁰⁵ IADF (2004),p.3;Kehew et al (2005);Kim (2003). The World Bank, USAID, and the ADB uphold Tamil Nadu as an international success in innovative municipal financing.

¹⁰⁶ Phelps (1997),p.5

have the choice of borrowing from TNUDF or pooling their requirements through WSPF. Though direct local government lending by banks and private financial institutions is minimal, they have been active subscribers to municipal bonds and spurred the creation of fledgling secondary markets. While in the context of direct market access, credit rating institutions verify the financial sustainability of the borrower and the project; in the latter case, TNUIFSL as the asset manager of TNUDF and WSPF imposes rigorous checks and safeguards. These have facilitated record debt recovery rates, a crucial component to cultivate investor confidence in municipal creditworthiness.

TNUDF, although benefiting from sizeable long term credit from the World Bank, also independently secured a ‘high safety’ credit rating and an over-subscribed application to its bond. Nevertheless, for self-sustaining bond market development, it needs to gradually be weaned away from Bank funds, which are attached with binding financial covenants. The lending terms of the Bank credit from GoTN to TNUDF and onwards to the ULBs were fixed at the previous year yields of comparable government bonds plus 3.5-4% risk premium.¹⁰⁷ There were no provisions for interest reset mechanisms or prepayment penalties. So as market interest rates dropped, many TNUDF borrowers foreclosed their loans and resorted to cheaper refinancing. The main beneficiary of refinancing TNUDF appraised projects was TUFIDCO, a state financial institution with subsidized lending rates. This led to a steep fall in TNUDF’s loans portfolio and returns in 2003-04 (*Table 8*).¹⁰⁸ As a consequence, private borrowing was replaced by public funds, reversing some of the gains of market development. More so, to the detriment of overall infrastructure

¹⁰⁷ The World Bank (1999),p.26. GoTN charged 1% risk premium to TNUDF, which was to levy 2.5% premium for water supply and underground sewerage projects and 3% for other municipal projects.

¹⁰⁸ TNUDF II Project Evaluation Report,2005,pp.63-64;TUFIDCO Annual Report 2003-04,p.8

creation in the state, new project investments took a backseat to the mass refinancing of existing projects.

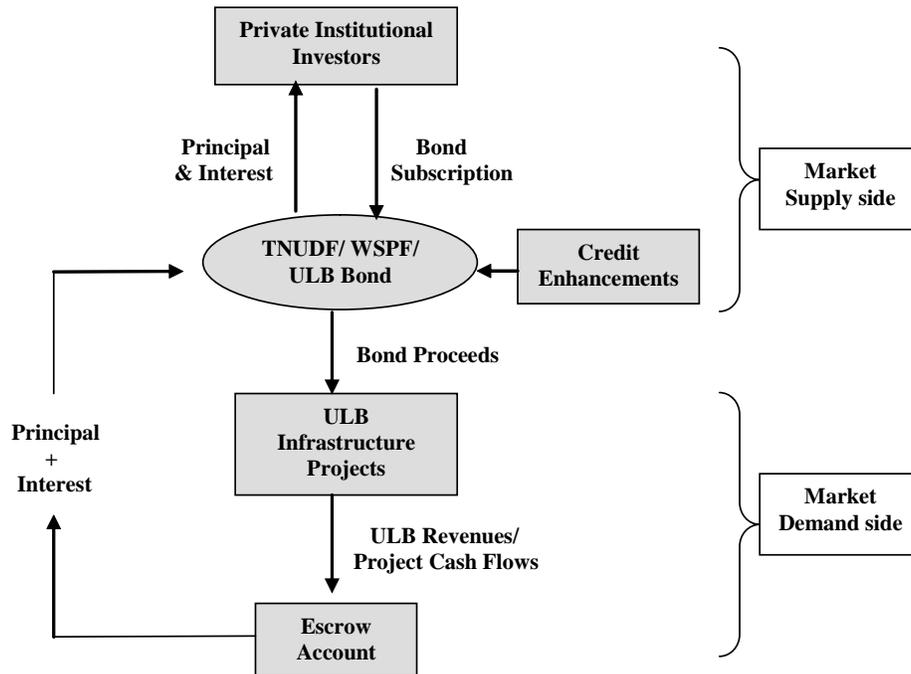
Table 8: Key Financial Indicators of TNUDF 2000-04

Key financial indicators	1999-2000	2000-01	2001-02	2002-03	2003-04
Total Assets (Rs.million)	4253.3	6575.2	6889.3	7940.3	5542.3
Loans to assets	0.54	0.66	0.61	0.47	0.15
Investments to assets	0.41	0.29	0.35	0.45	0.76
Return on assets	5.40%	4.44%	1.84%	1.56%	1.48%

Source: TNUDF Activity Report 2003-04, Financial Review of TNUDF, 2005

Despite the interest rate handicap, TNUDF has accomplished several financial engineering innovations by national and international standards. Contextually, these were no doubt imperative, given the nascency of municipal debt financing in India in the 1990s. However, as mentioned, the foundation of municipal bond markets requires robust supply and demand side elements, and financial structuring represents only supply side improvements (*Figure 3*).

Figure 3
Illustrative Municipal Bond Model in Tamil Nadu



Notes: TNUDF – Tamil Nadu Urban Development Fund; WSPF – Water & Sanitation Pooled Fund;
ULB – Urban Local Body

As the US is the pioneer and leader in municipal infrastructure bonds, its characteristics have become the yardstick for donors and governments evaluating emerging market funds.¹⁰⁹ Yet, the US model may not prove ideal for the assessment of municipal credit markets in developing countries. As witnessed in most countries, despite strong financial indicators, the MDFs did not succeed in developing private debt markets owing to low investor confidence in ULB performance. On the contrary, local governments in the US have strong financial, technical, and administrative capabilities. Additionally, there is a retail pull from private savers to invest in municipal growth.¹¹⁰ Hence, the role of a US financial intermediary is restricted to sourcing the cheapest capital funds on best possible

¹⁰⁹ Leigland (1997),p.2

¹¹⁰ Ghodke (2004),p.145

terms.¹¹¹ Imposing the US prototype with its robust demand side factors onto developing countries leads to an excessive preoccupation with financial aspects of market development, at the cost of insufficient investment in local government capacities.

In developing countries, demand side strengthening involves building the financial viability of local bodies as well as their skills in project development and execution. As expressed by Peterson, ‘creditworthiness of municipalities is at the heart of borrowing’.¹¹² Justifiably, there has been enormous focus on fortifying the revenue base of ULBs in Tamil Nadu through streamlining their tax and non-tax revenues and increasing financial devolutions. The state and federal governments have backed these initiatives, and provided a stable political environment. Even as a majority of local bodies in India swim and sink with the vagaries of state revenue transfers, GoTN has largely remained reliable in terms of its committed devolutions. This has buttressed the sustained operating surpluses of local governments, without which leveraging market borrowing is inconceivable. Besides, all municipal bonds had the reinforced backing of creative financial structures with escrows, debt service funds, and other credit enhancements.

The weak link in Tamil Nadu’s market development pursuits is the demand side capability of preparation and structuring of capital investment programs.¹¹³ Temporal synchronization between funds mobilization and its productive deployment is oft overlooked in debt financing. Nonetheless, if a lag ensues between the bond issue and project readiness, the costs of capital market financing could outweigh potential benefits.

¹¹¹ Peterson (1996),p.18

¹¹² Peterson (1998),pp.1-3

¹¹³ Interviews with K.Rajivan,1 July 2005;L.Ravikumar,11 July 2005;K.Mukundan,15 July 2005

This is unlikely in the US, where municipal bond income enjoys tax-free status and can be deployed in profitable investment deposits in the event of delayed pick-up in demand.¹¹⁴ In comparison, municipal bonds in Tamil Nadu were all issued at or above market yields and most of them were taxed. In a decreasing interest rate regime, if project preparation is tardy, investment of idle bond proceeds presents negative arbitrage opportunities. This is also amply evinced in the debt financing of Ahmedabad Municipal Corporation in Gujarat, the first ULB in India to float a non-guaranteed public bond. Lack of specialized project preparation support and delays in the approval process led to bond funds remaining unutilised for two years. Worse still, on account of falling interest rates, the returns earned on investing these unused funds were lower than interest payable on the bonds.¹¹⁵

After the functional devolution post the 1992 Constitutional Amendment, the functions and operations of ULBs in Tamil Nadu were reorganised, with limited municipal staff charged with managing all aspects of asset creation and service delivery in the local area. Ill-equipped in terms of organization and expertise, they were unable to contend with the issues of heavy infrastructural backlog. This was compounded by the multiplicity of agencies responsible for basic public services in the state.¹¹⁶ In the 1970s, recognising the dearth of project skills in local governments, GoTN established many statutory boards and parastatals to develop and construct essential infrastructure. Assets constructed by these parastatals were meant to be transferred to ULBs for operation and maintenance and cost recovery. For example, the Tamil Nadu Water Supply and Drainage Board was

¹¹⁴ El-Daher (1997),p.1

¹¹⁵ FIRE (2001),pp.3-4

¹¹⁶ Kumar (2001),p.75;Sarma (1986),p.8

established in 1971 to cater to the water supply and sanitation needs across municipalities in the state. But instead of improved services, it resulted in diffusion of responsibilities and lack of ownership of assets by the ULBs, who had not had any voice in their creation.¹¹⁷ This experience is similar to the failure of centrally designed projects imposed on local authorities.¹¹⁸

Additionally, project development for debt funding is more demanding than government grants. Besides the technical design aspect, financial project planning needs to match the rigor that capital market borrowing imposes. This necessitates projects that are commercially viable or have access to other dedicated revenue sources.¹¹⁹ It is generally accepted on poverty alleviation and affordability grounds that grants or subsidies are required to reduce the loan burden for basic infrastructural investments. Nevertheless, the project should be structured to at least recover the debt component. The culture of developing commercially justifiable projects with cost recovery mechanisms is scarce in India, historically dependent on public funds for urban infrastructure. After the state-wide reorientation of municipal accounts and performance management systems, Tamil Nadu is at least now poised to plan for commercially viable projects.

Recognising the inability of ULBs to prepare projects in the commercial format, the GoTN instituted grant fund provided technical assistance for developing projects. Most of the innovative projects financed by TNUDF availed the grant and were prepared by

¹¹⁷ Raghavan (1986),pp.256-257;Interview with R.Kesavan and N.V.V.Raghava,13 July 2005

¹¹⁸ Peterson (1996),p.5

¹¹⁹ FIRE (1999A),p.1

private consultants.¹²⁰ Although these represent credible attempts to develop some commercially viable projects, suitable risk mitigation strategies were often not designed. For example, although the Madurai road project is currently sustained on toll collections, recurrent litigation issues are threatening low usage and insufficient revenues. Similar opposition was confronted in a bypass bridge funded by TNUDF for Coimbatore Municipal Corporation. From the day of commissioning, protests by the public and Bus Owners' Association resulted in frequent blockades and non-payment of tolls.¹²¹ Thus, financial feasibility analysis for market borrowing is often not just a technocratic exercise by external consultants, and may necessitate the participation and political co-optation of potential users and the general public.

Another imminent disadvantage of TNUDF bundling project preparation and financing facilities is that the local government would be dissuaded from seeking alternative financing, despite the terms furnished. This could potentially offer another explanation for the large number of TNUDF prepared projects being financed at high interest rates and subsequently refinanced on cheaper terms. If local governments plan their own priorities for capital spending and prepare projects, they can shop around for the best financing terms.¹²² Moreover, if local entities convey greater ownership and commitment in project development and execution, the market may possibly bear higher project construction risk, a role that TNUDF currently fulfils. Both the Madurai revenue bond and WSPF pooled bond essentially refinanced TNUDF loans, bearing testimony to the Fund shouldering initial project development risks. On the other hand, financing in most

¹²⁰ Interview with K.Mukundan, 15 July 2005

¹²¹ TNUDF II Project Evaluation Report, 2005, pp.69-70

¹²² Peterson (1996), p.18

mature municipal credit markets relies on decentralized project preparation. For example, although Municipal Development Banks in Western Europe such as BNG in Netherlands offer bundled services, project development is the exclusive preserve of local governments, who then submit loan applications to multiple financiers.¹²³

Once the project is designed, local governments in Tamil Nadu forward the application for technical and financial approval to the Commissioner of Municipal Administration (CMA), the state nodal agency for Municipalities and Municipal Corporations. The responsibility of the CMA is to achieve integrated urban growth. While this umbrella unit could prove especially instrumental in shaping pooled financing requirements, it too suffers from limited professional skills. The CMA's involvement in the project preparation process was further limited as the external consultants reported directly to TNUDF. The absence of a close working relationship between TNUDF and the CMA resulted in lengthy delays in project sanctions, drastically reducing TNUDF disbursements over the last two years.¹²⁴

In sum, the real binding constraints in long term municipal market development in Tamil Nadu are not financial bottlenecks, as popularly perceived,¹²⁵ but ULB capacity to structure and execute viable projects, and contain development risks. While the choice of hiring private consultants appears simpler and attractive vis-à-vis in-house capacity enhancement, its sustainability is subject to caveats such as availability of scarce public or donor funds towards sponsoring consultants, its accessibility to smaller ULBs, and

¹²³ Peterson (2000),p.24

¹²⁴ The World Bank (2005B)

¹²⁵ ADB (2002),p.5

neutrality of chosen consultants. Additionally, project design consultants involve upfront costs to local governments, unmindful of whether project finances are raised or not.¹²⁶ The basic premise of developing self-sustaining debt markets is to reduce the burden of capital financing on limited public coffers. In order for ULBs to graduate from concessionary to market finance, they would need to broaden their technical and financial skills and resources. Currently, the financial intermediaries TNUDF and WSPF are offering packaged project development and funding assistance. But on account of state intercept mechanisms and the resultant high loan repayment rates, these MDFs have little incentive in addressing underlying ULB capacity bottlenecks.¹²⁷ If capacity constraints persist, and local bond market development is to be sustained, it seems unlikely that the Bank's conception of MDFs as 'short term transitional instruments' would prove a reality.¹²⁸

¹²⁶ Bahl and Miller (1983),p.205

¹²⁷ Kim (2003),p.12

¹²⁸ The World Bank, "Innovations in Municipal Finance"

V. Conclusion

Many local governments have resorted to private financing of public infrastructure under the pressure of urbanization and fiscal stress. Experiments have ranged from Western models of municipal bonds and development banks, to local Municipal Development Funds, often assisted by donors. While most trials can claim success for some instances of capital market access, the overall track record in developing long term municipal credit markets has proved rather dismal. Devoid of market development, issue of bonds would remain sporadic and an unsustainable basis of capital financing.

Against the background of international experiences, this paper assesses the efforts of Tamil Nadu in India towards municipal bond market development. The state has been lauded as the most progressive in India for capital market borrowing. Nevertheless, this paper contends that unless local governments develop demand side capabilities in project preparation and development, financial innovations would fall short of building durable municipal bond markets. The seeds sowed for market creation can grow only if both demand and supply side factors are developed in tandem, such that the debt funds mobilised are deployed promptly in productive projects.

Tamil Nadu has accomplished a series of financial innovations despite the World Bank's binding interest rate constraints. It shored up nearly Rs.3000 million within five years through a series of pioneering issues such as India's first bond by a joint private-public municipal fund, India's first revenue bond, and the world's first pooled financing bond

outside the US. From a supply side perspective, Tamil Nadu's ingenious financial engineering overcame potential credit risks and successfully secured private institutional finance even for non-remunerative infrastructure in small towns.

However, credit enhancements do not cover development and construction risks, which depend on demand side strengths of local governments in structuring and executing projects on time. The cost of market financing would grow disproportionately if funds mobilized are forced into lower interest-bearing investments, on account of a lag in project readiness. Beleaguered by insufficient professional staff, most ULBs in Tamil Nadu do not possess in-house skills to develop commercially viable projects. The state's establishment of parastatals to construct new infrastructure and hand them over to local bodies for operation and maintenance, has pushed the ULBs farther away from developing and owning their capital investment programs. Although TNUDF financed projects can avail the state instituted grant fund for project development consultancies, these external interventions have not bridged the skill gaps. The weakness is aggravated by a corresponding deficiency in project preparation expertise in the CMA, the nodal agency of municipalities. As held by decentralization theorists, devolution of functions should be followed by the devolution of finance and functionaries.¹²⁹ In the absence of self-reliance in financial and project appraisal skills, the ULBs would be disabled from securing the best financial terms available in the market.

Urban local governments in Tamil Nadu have heralded the state-wide restructuring of municipal accounting systems as well as automation of municipal records. A positive step

¹²⁹ Subrahmanyam and Choudhury (2004),p.20

towards capital market access, such initiatives position them strategically to enhance other demand side capabilities for long term debt market development. Until the ULBs augment project capacities, intermediaries such as TNUDF and WSPF may need to continue their multifarious roles of technical support, financial assistance, and risk management.

The financial experiments of Tamil Nadu are currently being extended across other states of India, also establishing their own Municipal Development Funds and obtaining credit ratings for their larger municipalities. While many of Tamil Nadu's financial innovations may possibly be replicated in other progressive states, the benefits of debt finance could be nullified, if viable and timely projects are not developed for investment. Unless the right lessons are learnt in terms of both demand and supply side requisites, the pace of market development at the national level may be slowed down. In the race to crowd in private funds, donors and state governments should exercise care not to crowd out vital local government capabilities.

Appendix

Acronyms

BOT	-	Build-Operate-Transfer
BSF	-	Bond Service Fund
CMA	-	Commissioner of Municipal Administration
CMWSSB	-	Chennai Metropolitan Water Supply and Sewerage Board
CRISIL	-	Credit Rating and Investment Services of India Limited
FIRE (D)	-	Financial Institutions Reform and Extension Project - Debt Market
GoTN	-	Government of Tamil Nadu
LGUGC	-	Local Government Unit Guarantee Corporation
MDF	-	Municipal Development Fund
MUDF	-	Municipal Urban Development Fund
SFC	-	State Finance Commission
TNUDF	-	Tamil Nadu Urban Development Fund
TNUDP	-	Tamil Nadu Urban Development Project
TNUIFSL	-	Tamil Nadu Urban Infrastructure Financial Services Limited
TUFIDCO	-	Tamil Nadu Urban Finance and Infrastructure Development Corporation Limited
ULB	-	Urban Local Body
USAID	-	US Agency for International Development
WSPF	-	Water and Sanitation Pooled Fund

Bibliography

I. Primary Sources

A. Official Publications

Adjacent Urban Areas Board Note: WSPF bond, 2003, obtained from the TNUIFSL offices, Chennai, India.

Census of India 2001, retrieved: 5 August 2005, from <http://www.censusindia.net/>

Census of Tamil Nadu 2001, retrieved: 5 August 2005, from <http://www.census.tn.nic.in>

Financial Review of TNUDF, 2005, prepared by TCG India, study commissioned by TNUDF, Chennai

Gazette Notification of Government of India no.293, S.O. 392 (E), 24 March 2004

Information Memorandum for the private placement of bonds of Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB), 2004, retrieved: 5 July 2005, from www.bseindia.com/BSEdata/ipo_downloads/offer_document.pdf

Information Memorandum for the private placement of bonds of Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB), 2005, retrieved: 5 July 2005, from http://www.bseindia.com/BSEdata/ipo_downloads/CMWSSB280305.pdf

Information Memorandum for the private placement of bonds of the Corporation of Chennai, 2005, retrieved: 5 July 2005, from http://www.bseindia.com/BSEdata/ipo_downloads/Corporation of Chennai.pdf

Memorandum of private placement for non-convertible redeemable bonds issued by WSPF, 2002, obtained from the TNUIFSL offices, Chennai, India.

Policy note 2004-05 of Municipal Administration and Water Supply Department, Government of Tamil Nadu, retrieved: 10 July 2005, from <http://www.tn.gov.in/policynotes/archives/policy2004-05/maws2004-05-9.htm>

Second State Finance Commission Report 2002-07, (Summary recommendations available at <http://www.tn.gov.in/misc/ssfc.htm>)

Tamil Nadu at a glance, retrieved: 5 August 2005, from <http://www.tn.gov.in/misc/tnataglance.htm>

Tamil Nadu District Municipalities Act 1920 (including amendments)

Tamil Nadu Government Gazette No.149/ G.O. No.270, June 2004

Tamil Nadu Government Gazette No. 150/ Ordinance No.7, June 2004

Tamil Nadu Urban Development Fund (TNUDF) Activity Report 2001-02, obtained from the TNUDF offices, Chennai, India.

Tamil Nadu Urban Development Fund (TNUDF) Activity Report 2002-03, obtained from the TNUDF offices, Chennai, India.

Tamil Nadu Urban Development Fund (TNUDF) Activity Report 2003-04, obtained from the TNUDF offices, Chennai, India.

Tamil Nadu Urban Development Fund (TNUDF) Annual Accounts for the year ended 31 March 2001, obtained from the TNUDF offices, Chennai, India.

Tamil Nadu Urban Development Fund (TNUDF) Annual Accounts for the year ended 31 March 2002, obtained from the TNUDF offices, Chennai, India.

Tamil Nadu Urban Development Fund (TNUDF) Auditors Report 2004, obtained from the TNUDF offices, Chennai, India.

Tamil Nadu Urban Development Fund (TNUDF) Draft Annual Accounts for the year ended 31 March 2003, obtained from the TNUDF offices, Chennai, India.

Tamil Nadu Urban Finance and Infrastructure Development Corporation Limited (TUFIDCO) Annual Report 2003-04, obtained from TUFIDCO office, Chennai, India.

The Constitution of India, retrieved: 5 August 2005, from <http://indiacode.nic.in/coiweb/welcome.html>

The Constitution (Seventy-Fourth Amendment) Act 1992, retrieved: 5 August 2005, from <http://indiacode.nic.in/coiweb/amend/amend74.htm>

TNUDP II Project Evaluation Report, 2005, study undertaken by Infrastructure Development Finance Company, commissioned by the Tamil Nadu Urban Development Project Office, Chennai, India.

Twelfth Finance Commission Report 2005-10

Union Budget of India for the year 2002-03, retrieved: 5 July 2005, from indiabudget.nic.in/ub2002-03/bs/speech_a.htm

Urban finance assessment for TNUDP III, 2004, draft urban finance report prepared by TCG India for TNUDF, November 19, 2004

Water and Sanitation Pooled Fund (WSPF) – Objectives, Structure, Security and Credit Enhancements, 2002, obtained from the TNUIFSL offices, Chennai, India.

B. Interviews

Mr L. Baker, Chief of INDO-US Financial Institutions Reform and Expansion Project, on 13 July 2005

Ms Gayathri, Assistant Vice President Finance, TNUDF, on 6 July 2005

Mr K.S. Girish, Assistant General Manager, Community Consulting India Private Limited, Consultants to TNUDF, on 22 July 2005

Mr S. Jayaraman, Additional Director of Municipal Administration (Retd.), Tamil Nadu, on 11 July 2005

Mr R.M. Karuppiah, General Manager Tamil Nadu Urban Finance and Infrastructure Development Corporation Limited, on 22 July 2005

Mr R. Kesavan, Infrastructure Finance Specialist, The World Bank, on 13 July 2005

Ms H. Mahalingam, Manager ICRA (Indian Credit Rating Agency) on 7 July 2005

Ms S. Malathi, Indian Administrative Services (IAS), former Secretary to Government of Tamil Nadu, currently Commissioner of the Economics and Statistics Department, Government of Tamil Nadu, on 5 July 2005

Prof O.P. Mathur, National Institute of Public Finance and Policy, on 13 July 2005

Mr K. Mukundan, Senior Vice President, IL&FS, on 15 July 2005

Mr N.V.V. Raghava, Municipal Engineer, The World Bank, on 13 July 2005

Mr K. Rajivan, former Managing Director and CEO of TNUDF and TNUIFSL, on 1 July 2005

Mr L. Ravikumar, former Vice President, Projects, TNUDF, on 11 July 2005

Mr A. Sharma, Indian Administrative Services (IAS), Commissioner of Municipal Administration, on 6 July 2005

Mr H.K. Sinha, Indian Administrative Services (IAS), former Commissioner of Municipal Administration, on 10 July 2005

Mr R. Venkataraman, former Vice President, Resources, TNUDF, on 6 July 2005

II. Secondary Sources

ADB (2002), "Local government finance and municipal credit markets in Asia",
retrieved: 5 August 2005, from
<http://www.adb.org/documents/conference/lgfmcm/in1703.pdf>

Bagchi, Amaresh (1997), "Reforming the property tax base, need for a new direction",
Economic and Political Weekly, November 22, 1997, pp.3005-3010

Bagchi, Soumen and Anirban Kundu (2003), "Development of municipal bond market in
India: issues concerning financing of urban infrastructure", *Economic and Political
Weekly*, February 22, 2003, pp.789-795

Bahl, Roy W. (ed.) (1981), *Urban government finance: emerging trends*, Vol. 20, Urban
Affairs Annual Reviews, Sage Publications, London

Bahl, Roy W. and Barbara Miller (eds.) (1983), *Local government finance in the third
world, A case study of the Philippines*, Praeger Publishers

Bahl, Roy W. and Johannes F. Linn (1992), *Urban public finance in developing
countries*, Published for the World Bank, Oxford University Press

Bahl, Roy W. and Paul Smoke (eds.) (2003), *Restructuring local government finance in developing countries: Lessons from South Africa*

Batley, Richard (1996), "Public private relationships and performance in service provision", *Urban Studies*, Vol. 33, No. 4-5, pp. 723- 751

Bird, Richard M. (1980), *Central local fiscal relations and the provision of urban public services*, Centre for Research on Federal Financial Relations, The Australian National University, Canberra Research Monograph Number 30

Bird, Richard M. (2001), "Setting the stage: municipal and inter-governmental finance", in Freire, Mila and Richard Stern (eds.) *The challenge of urban government – policies and practices*, The World Bank Institute, Washington D.C., pp.113-128

Black, Rebecca (2004), "Presentation on USAID India Economic Growth Program", June 2004, retrieved: 3 July 2005, from <http://www.econgrowth2004.net/Presentations/>

Daniel, Sam (2005), *Madurai ring road runs into controversy*, retrieved: 5 August 2005, from <http://www.ndtv.com/morenews/showmorestory.asp?slug=Madurai+Ring+Road+runs+in+to+controversy&id=76112>

Datta, Abhijit (1999), “Institutional aspects of urban governance”, in Mathur, O.P. (ed.), *India: the challenge of urban governance*, National Institute of Public Finance and Policy, New Delhi, pp.87-106

Devas, Nick (1989), *Financing local government in Indonesia*, Monographs in International Studies, Ohio University Center for International Studies

Ebel, Robert D. and Francois Vaillancourt (2001), “Fiscal decentralization and financing urban governments: framing the problem”, in Freire, Mila and Richard Stern (eds.) *The challenge of urban government – policies and practices*, The World Bank Institute, Washington D.C., pp.155-170

El-Daher, Samir (1997), “Municipal bond markets: experience of the USA”, *Infrastructure notes*, Transportation, Water and Urban development, The World Bank

El-Daher, Samir (2000), “Specialized financial intermediaries for local governments: A market-based tool for local infrastructure finance”, *Infrastructure notes*, Urban sector, The World Bank

El-Daher, Samir (2004A), “Morocco”, in Freire, Mila and Richard Stern (eds.) *The challenge of urban government – policies and practices*, The World Bank Institute, Washington D.C., pp.355-363

El-Daher, Samir (2004B), "Tunisia", in Freire, Mila and Richard Stern (eds.) *The challenge of urban government – policies and practices*, The World Bank Institute, Washington D.C., pp.365-373

Epstein, Peter, George E. Peterson, Juliana H. Pigey, Michael DeAngelis and Sam Sherer (2000), "Municipal credit market development in Bulgaria: policy and legal framework", East European Regional Housing Sector Assistance Project, The Urban Institute, retrieved: 17 July 2005, from http://www.urban.org/PDF/bulg_credit.pdf

FIRE (1999A), "The Ahmedabad municipal bond issue: India's first without a guaranty", *Indo-US Financial Institutions Reform and Extension Project – Debt Market component (FIRE-D) Project Note No. 17*, July 1999

FIRE (1999B), "Urban Performance Indicators Systems: A comparative approach to monitoring urban performance and application in Tamil Nadu", *Indo-US Financial Institutions Reform and Extension Project – Debt Market component (FIRE-D) Project Note No. 19*, August 2000

FIRE (2000), "Introducing an improved financial accounting system in urban local bodies in India: The Successful State-wide Reform Initiative in Tamil Nadu", *Indo-US Financial Institutions Reform and Extension Project – Debt Market component (FIRE-D) Project Note No. 22*, October 2000

FIRE (2001), “Lessons learned from the Ahmedabad municipal bond”, *Indo-US Financial Institutions Reform and Extension Project – Debt Market component (FIRE-D) Project Note No. 25*, April 2001

FIRE (2003), “Pooled finance model for water and sanitation projects: The Tamil Nadu Water and Sanitation Pooled Fund”, *Indo-US Financial Institutions Reform and Extension Project – Debt Market component (FIRE-D) Project Note No. 31*, May 2003

Fitch Ratings (2003), *Water and Sanitation Pooled Fund (WSPF) rating rationale*, pp.1-10, retrieved: 12 July 2005, from www.fitchratings.com

Freire, Mila, John Petersen, Marcela Huertas & Miguel Valadez (eds.) (2004) *Sub National Capital Markets in Developing Countries – From Theory to Practice*, A co-publication of the World Bank and Oxford University Press

Ghodke, Manju (2004), “Assessing capital markets by urban local bodies in India: an assessment of municipal bonds”, in the *India Infrastructure Report 2004*, 3iNetwork, Oxford University Press, New Delhi, pp.139-149

Ghosh, Soumya Kanti and Soumen Bagchi (2002), “Capital account liberalization in India: implications for infrastructure financing and economic growth”, *Economic and Political Weekly*, Dec 7, 2002, pp.4927-4933

Goyal, Ashima (2004), "Getting water from public-private partnerships" in the *India Infrastructure Report 2004*, 3iNetwork, Oxford University Press, New Delhi, pp.279-311

Guhan, S. (1986), "State finances in Tamil Nadu: 1960-85. A review of trends and policy", *Working paper no 77*, Madras Institute of Development Studies

IADF (2004), "Financing local government", *International Association of Development Funds Bulletin*, Vol. 1, Issue 1, March 2004, pp.1-7

ICRA (2000), *ICRA credit rating rationale on Tamil Nadu Urban Development Fund Bond issue*, retrieved: 10 July 2005, from

www.debtonnet.com/icrarr/fsnov2000tndf.HTM

ICRA (2003), *ICRA credit history: Corporation of Madurai, Inner Ring Road Project*, retrieved: 10 July 2005, from www.debtonnet.com/icrarr/fsnov2000tndf.HTM

Jha, Abhas Kumar (2004), "Creating local financing systems for infrastructure in India", in the *India Infrastructure Report 2004*, 3iNetwork, Oxford University Press, New Delhi, pp.128-133

Jha, Gangadhar (2003), "Municipal financial resource mobilisation status, concerns and issues", prepared for the National Seminar on Municipal Finance, sponsored by the Twelfth Finance Commission, New Delhi, December 29-30, 2003

Johnson, Brad (2004), “Innovative Pooled Financing Mechanisms for Local Infrastructure Investments”, Presentation to the Innovative Water and Wastewater Financing Workshop for the ANE Region, Manila, Philippines, March 15-17, 2004

Joshi, Ravikant (2004), “Value for money and municipal accounting reforms”, in the *India Infrastructure Report 2004*, 3iNetwork, Oxford University Press, New Delhi, pp.343-347

Kehew, Robert and John Petersen (2004), “Indonesia”, in Freire, Mila and Richard Stern (eds.) *The challenge of urban government – policies and practices*, The World Bank Institute, Washington D.C., pp.443-459

Kehew, Robert, Tomoko Matsukawa and John Petersen (2005), “Local financing for sub-sovereign infrastructure in developing countries: Case studies of innovative domestic credit enhancement entities and techniques”, *Discussion Paper No.1*, Infrastructure, Economics and Finance department, The World Bank

Kim, Yun-Hwan (ed.) (2003), *Local government finance and bond markets*, Asian Development Bank publication

Kumar, Rajendra (2001), “The Coimbatore City Corporate Plan: A case study of strategic management”, in Freire, Mila and Richard Stern (eds.) *The challenge of urban government – policies and practices*, The World Bank Institute, Washington D.C., pp.73-

Kundu, Amitabh (2001), "Urban development, infrastructure financing and emerging system of governance in India: a perspective", *Management of Social Transformations*, Discussion Paper No. 48, Vol. 4, No. 15, retrieved on 17 July 2005, from <http://www.unesco.org/most/kundu.htm>

Leigland, James (1997), "Accelerating municipal bond market development in emerging economies: An assessment of strategies and progress", *Public Budgeting & Finance*, Vol. 17, Issue 2, pp. 57-80.

Maheshwari, R.K. and Ashish Maheshwari (2003), *Infrastructure project finance - an Indian perspective*, New Royal Book Company, Lucknow, India

Marfitsin, Valeri V., Lioudmila Tokoun, Pavel Makagonov, V. Ivanov (1997), "Russia: Regional and Local Borrowing" in Phelps, Priscilla (ed.), "Municipal Bond Market Development", *USAID Finance Working Papers*, pp.71-80

Mathur, O.P. (1999), "Fiscal innovations and urban governance", in Mathur, O.P. (ed.), *India: the challenge of urban governance*, National Institute of Public Finance and Policy, New Delhi, pp.233-274

Mathur, O.P., Sengupta, P., and Bhaduri, A. (2000), *Options for closing the revenue gap of municipalities: 2000-01 to 2004-05*. National Institute of Public Finance and Policy, New Delhi

Mathur, Mukesh P. (2002), "Alandur sewerage project: A unique experiment of public participation in project financing", in the *India Infrastructure Report 2002*, 3iNetwork, Oxford University Press, New Delhi, pp. 226-229

Matoušková, Zdena, Petr Tacjman, and George E. Peterson (1997), "Monitoring report municipal infrastructure financing program Czech Republic", *U.S. Agency for International Development working paper*, retrieved on 10 August 2005, from http://www.dec.org/pdf_docs/PNACD925.pdf

Mukundan, K. (2005), "Analytical note on TNUDP and its impact on municipal capacities", South Asia Energy and Infrastructure Unit (SASEI), The World Bank

Musgrave, Richard A. (1959), *The theory of public finance: a study in public economy*, McGraw-Hill Book Company Inc., New York

Oates, Wallace E. (1993), *Fiscal federalism*, 2nd Edition, Gregg Revivals, USA

Orial, Lydia N. (2003), "Philippines", in Kim, Yun-Hwan, *Local government finance and bond markets*, ADB publication, pp.385-428

Peterson, George E. (1996), "Using municipal development funds to build municipal credit markets", The Government of India and the World Bank, retrieved: 5 August 2005, from www.worldbank.org/html/fpd/urban/mun_fin/toolkit/77p.pdf

Peterson, George E. (1998), "Measuring local government credit risk and improving credit worthiness", The World Bank, retrieved: 5 August 2005, from www.worldbank.org/html/fpd/urban/mun_fin/toolkit/credit_risk.html

Peterson, George E. (2000), 'Building local credit systems', Background series, Municipal Finance, The World Bank, retrieved: 5 August 2005, from www.urban.org/PDF/credit-systems.pdf

Peterson, George E. (2003), "Banks or bonds? Building a municipal credit market", The Urban Institute, Washington D.C., retrieved: 5 August 2005, from www.oecd.org/dataoecd/59/56/21559374.pdf

Pethe, Abhay and Manju Ghodke (2002), "Funding urban infrastructure: from government to markets", *Economic and Political Weekly*, June 22, 2002, pp.2467-2470

Phelps, Priscilla (ed.) (1997), "Municipal Bond Market Development", *USAID Finance Working Papers*, Environmental and Urban Programs Support Project No. 940-1008, retrieved: 10 August 2005, from http://www.dec.org/pdf_docs/PNACC385.pdf

Pradhan, H.K. (2003), "India", in Kim, Yun-Hwan, *Local government finance and bond markets*, ADB publication, pp.87-165

Pradhan, H.K. (2004), "Bond market financing by sub-national governments: Indian experience", retrieved: 10 July 2005, from <http://www.developmentfunds.org/pubs/HK%20Pradhan%20presentation.ppt>

Pradhan, H.K. (2005), "Subnational capital market development in India", presentation at the International Conference on Emerging Securities Market: Challenges and Prospects, January 10-12, 2005.

Raghavan, Veera S.T. (1986), "New strategies for financing urban development in India", in Sarma, K.S.R.N (ed.), *Financing urban development in India*, Indian Institute of Public Administration, New Delhi, pp.243-259

Rajivan, K. (2004), "Linking cities with domestic capital", retrieved: 3 July 2005, from www.citiesalliance.org

RBI (2000), "Selected economic indicators", *Reserve Bank of India Bulletin*, November 2000

RBI (2002), "Selected economic indicators", *Reserve Bank of India Bulletin*, December 2002

Sarma, K.S.R.N (ed.) (1986), *Financing urban development in India*, Indian Institute of Public Administration, New Delhi

Schwartz, Gerd and Claire Liuksila (1997), “Argentina”, in Ter-Minassian, Teresa (ed.) *Fiscal Federalism in Theory and Practice*, Washington D.C., IMF Publication, pp.387-422

Sen, Tapas K. (2003), “Improving sub-national fiscal responsibility in the federal context of India”, in the *India Infrastructure Report 2003*, 3iNetwork, Oxford University Press, New Delhi, pp.85-91

Singh, Pradeep (2003), “Building domestic public capital market instruments”, Presentation by President and CEO IL&FS, India, retrieved: 3 August 2005, from www.usaid.gov/our_work/economic_growth_and_trade/development_credit/kyoto/singh-building_domestic.pdf

Sood, Priyanka (2004), “India”, in Freire, Mila, John Petersen, Marcela Huertas & Miguel Valadez (eds.) *Sub National capital markets in developing countries – From theory to practice*, pp. 415-440

Srinivasan, V.K. (2004), “Enhancing fiscal efficiency through federal fiscal transfers”, prepared for the Twelfth Finance Commission

Subrahmanyam, Siva K. and R.C. Choudhury (2004), *Functional and Financial Devolution on Panchayats in India*, National Institute of Rural Development, Hyderabad, India

Temel, Judy Wesalo (2001), *The fundamentals of municipal bonds*, 5th Edition, The Bond Market Association

The World Bank (1999), “Project Appraisal Document for the Second Tamil Nadu Urban Development Project”, April 28, 1999, retrieved: 10 August 2005, from <http://www.worldbank.org.in/>

The World Bank (2005A), “Implementation Completion Report for the Second Tamil Nadu Urban Development Project”, 31 May 2005, retrieved: 10 August 2005, from <http://www.worldbank.org.in/>

The World Bank (2005B), “Project Information Document, Appraisal stage for the Third Tamil Nadu Urban Development Project”, 1 July 2005, retrieved: 10 August 2005, from <http://www.worldbank.org.in/>

The World Bank, “Innovations in Municipal Finance”, retrieved: 15 August 2005, from <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/EXTMF/>

USAID (1997), “USAID/Philippines Initiatives and Activities with the Private Sector”, retrieved: 15 August 2005, from http://www.usaid-ph.gov/documents/about/aid_alliance.pdf, pp.1-5

Vera, R. and Y. Kim (2003), “Local Government finance, private resources, and local credit markets in Asia”, *ERD Working Paper Series No. 46*, Asian Development Bank

Vyas, Sameer (2004), “Addressing Urban Infrastructure Needs of the Poor: The Tamil Nadu Experience of Public Private Partnerships”, Paper presented at Shanghai, May 25-27, 2004, The World Bank, retrieved: 20 August 2005, from

<http://www.worldbank.org/wbi/reducingpoverty/docs/FullCases/India%20PDF/India%20Urban%20infrastructure%20Tamil%20Nadu.pdf>, pp.1-22

Wallich, Christine I., Richard M. Bird and Gabor Peteri (1996), “Financing local government in Hungary”, in Richard M. Bird, Robert D.Ebel, Christine I.Wallich (Eds.), *Decentralization of the socialist state, Inter governmental finance in transition economies*, The World Bank 1996.

Wielkopolski, Ostrów (2006), “Strengthening the Municipal Bond Market”, retrieved: 17 July 2005, from <http://lgi.osi.hu/resources/practices/pdf/munib.pdf>